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ABSTRACT

Cost accounting in California community colleges is considered in this study in terms of the mission of the colleges, the impact of the open enrollment policy, the economic benefits attributable to the colleges, and comparisons made with other segments of public higher education. The study revealed that statewide community college operating expenses were distributed as follows: 53% for instructional programs, 12% for general instructional services, 9% for student services, and 14% for instructional support and library and community services. One visible effect of the open access policy was that in 1977 88% of the freshmen and sophomores enrolled in a higher education institution and 10% of all Californians were enrolled in a community college. One direct benefit attributable to the colleges was that the mean income of a male with one to three years of college was $2,118 greater than that of a high school graduate. No absolute increase in per-student support from the State General Fund for the community colleges was found from 1973, when cost per weekly student contact hour was $59.52 to 1978. Major areas of vocational education activity in the community colleges were trade and industry, office, health, technical, and distributive programs. The mean for all vocational education expenditures per program was $1,028 per average daily attendance. Of the state's 1976-77 vocational education graduates 54% were from community colleges, and of these 92.4% were employed. (Author/AYC)

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Costs in California Community Colleges

Summaries & Analyses

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February 1979

JC 790 115

Prepared for:

Chancellor's Office, California Community Colleges
Association of California Community College Administrators
California Community and Junior College Association
California Community College Trustees

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ON

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Glenn G. Gooder
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Project Directors

TABLE OF CONTENTS

	Page
CHANCELLOR'S AD HOC COMMITTEE ON COST EFFECTIVENESS. .	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	v
SUMMARIES.	1
SUGGESTIONS FOR FURTHER STUDY.	15
ANALYSES	17
BACKGROUND.	17
The Study in Context: Mission of the Community Colleges	20
Research Questions and Limitations	21
INTRA-SEGMENTAL COST ANALYSIS	23
Cost Allocation Patterns Statewide	25
Instructional Costs Per A.D.A.	25
Non-Instructional Costs.	26
Observations on Cost Allocation Patterns . .	27
INTER-SEGMENTAL COMPARISONS	27
State General Fund Support.	27
Cost of Education	28
Vocational Education.	29
IMPACT.	37
Access Through the Open Door.	37
Economic Benefit of Community Colleges. . . .	40
BIBLIOGRAPHY	43

LIST OF TABLES

Table		Page
1	COST ALLOCATION PATTERNS, CREDIT AND NON-CREDIT: ALL REPORTING COMMUNITY COLLEGE DISTRICTS, 1977-78	2
2	COST ALLOCATION PATTERNS: ALL REPORTING COMMUNITY COLLEGE DISTRICTS, 1977-78	3
3	TOTAL FALL 1977 ENROLLMENTS OF FRESHMAN AND SOPHOMORE STUDENTS	4
4	PARTICIPATION RATES PER 1,000, FALL 1977	4
5	PERCENT OF 1975 HIGH SCHOOL GRADUATES ENROLLED IN PUBLIC COLLEGES BY ETHNIC BACKGROUND AND FAMILY INCOME	5
6	PERCENT OF COLLEGE STUDENT ENROLLMENTS BY ETHNICITY AND SEX, FALL 1977	6
7	FIVE YEAR PATTERNS OF STATE GENERAL FUND ALLOCATIONS AND ENROLLMENTS: ALL SEGMENTS	9
8	COSTS PER WEEKLY STUDENT CONTACT HOUR: ALL SEGMENTS OF HIGHER EDUCATION, 1972-73.	10
9	PERCENT OF VOCATIONAL EDUCATION EXPENDITURES BY PROGRAM AND LEVEL, 1976-77.	11
10	VOCATIONAL EDUCATION EXPENDITURES PER A.D.A. BY PROGRAM AND LEVEL, 1976-77.	12
11	VOCATIONAL STUDENTS COMPLETING PROGRAM, 1976-77.	13
12	VOCATIONAL EDUCATION EXPENDITURE SUMMARY BY PROGRAM AND LEVEL, 1976-77	31
13	VOCATIONAL EDUCATION EXPENDITURE SUMMARY PER A.D.A. FOR PART B AND FOR ALL PARTS, 1976-77	33
14	VOCATIONAL STUDENTS COMPLETING PROGRAM: EMPLOYMENT AVAILABILITY DETAIL, 1976-77.	36
15	FALL 1977 ENROLLMENT OF FRESHMAN AND SOPHOMORE STUDENTS	38

LIST OF TABLES (cont.)

Table		Page
16	POSTSECONDARY ACTIVITIES BY ETHNIC BACKGROUND, CLASS OF 1975.	39
17	POSTSECONDARY ACTIVITIES BY FAMILY INCOME, CLASS OF 1975.	39
18	STUDENT COSTS FOR COMMUNITY COLLEGE ATTENDANCE . .	41
19	MEAN INCOME BY EDUCATIONAL ATTAINMENT, 1976 DOLLARS	41
20	FORTY-FIVE YEAR MARGINAL GROSS INCOME GAINS: HIGH SCHOOL VS COMMUNITY COLLEGE LEVEL EDUCATIONAL ATTAINMENT, 1976 DOLLARS	42

COSTS IN THE CALIFORNIA COMMUNITY COLLEGES:

SUMMARIES

In the Fall of 1978, Chancellor William G. Craig appointed an ad-hoc committee on cost effectiveness. In November of 1978, the committee agreed on the concept and design for a study of costs in California Community Colleges.

Within the limitations of the data available and within the extreme time constraints imposed, it was possible to address six basic questions. Those questions and an overview of the answers are provided in this section on SUMMARIES. More detailed information and explanation of procedures are provided in the ANALYSES section which follows:

QUESTION #1 - Statewide, what are the relative costs of instructional versus non-instructional activities in the California Community Colleges?

In response to this question, cost analysis was developed for the 1977-78 academic year reporting period. Four program activities were analyzed: (1) Instructional Services (Credit and Non-Credit); (2) Student Services (Admissions and Records, Counseling and Guidance, other Student Services including a portion of Financial Aids; (3) Library, Learning Resources and Media Services; and (4) Instructional Support Services. Costs were analyzed in the aggregate and per unit of average daily attendance (a.d.a.).

Two other areas were included for aggregate totals only: (1) Community Services, and (2) General Administrative Services (Planning, Policy Making, Staff Support, Fiscal and Management Services). Separate analyses were not made of Maintenance and Operations or of Auxiliary Services (Food Services, Bookstore).

Costs were based upon Total Current Operating Expense (TCOE) per average daily attendance (a.d.a.). This is different from the commonly used Total Current Expense of Education.

Data based upon this analysis are provided in Table 1 and Table 2.

TABLE 1

COST ALLOCATION PATTERNS
CREDIT AND NON-CREDIT
ALL REPORTING COMMUNITY COLLEGE DISTRICTS
1977-78 (CCAF - 111)
(N = 63)

	A.D.A.	TCOE[1]	TCOE Per A.D.A.
Credit	613,576	$ 1,039,232,597	$ 1,693.73
Non-Credit	57,032	$ 57,594,076	$ 1,008.12
TOTAL	670,608	$ 1,096,727,573	$ 1,635.42

[1] Total Current Operating Expense

Statewide, about 91.5% of the total a.d.a. generated in all California Community Colleges in 1977-78 was credit a.d.a., about 8.5% was non-credit. The operating expense for credit programs was $1,693.73 per a.d.a. while that for non-credit programs was $1,008.12 per a.d.a. The operating expense for all programs (credit and non-credit) was $1,635.42 per a.d.a.

Statewide, the unit cost per a.d.a. for instructional program activities was $860.69 or 52.63% of the total cost per a.d.a. Costs for Library, Learning Resources and Media Services were $14.65 per a.d.a. or 4.56% of the total. Costs for Instructional Support Services including costs for program management and curriculum development added about $96.30 per a.d.a. or 5.89% of the total. Instructional Services and related programs, therefore, resulted in a total cost per a.d.a. of $1,031.64 or 63.08% of the total ($1,635.42).

TABLE 2

COST ALLOCATION PATTERNS:
ALL REPORTING COMMUNITY COLLEGE DISTRICTS
1977-78
(N = 63)

Program (Activity)	Cost ($)	% of T.C.O.E.[1]	Cost ($)/a.d.a.
Instruction[2]	$ 577,188,981	52.63%	$ 860.69
Student Services[3]	$ 100,716,910	9.18%	$ 150.19
Library Services	$ 50,052.808	4.56%	$ 74.65
Instructional Support	$ 64,580.336	5.89%	$ 96.30
Community Services	$ 37,660,827	3.43%	n.a.
General Instructional Services[4]	$ 134,265,660	12.24%	n.a.
Other Services[5]	$ 132,262,051	12.07%	n.a.
Total Current Operating Expense (T.C.O.E.)	$1,096,727,573	100.00%	$ 1,635.42

Total A.D.A. (Non-Credit) = 57,032
Total A.D.A. (Credit) 613,576
Total A.D.A. (All) 670,608

[1]Total Current Operating Expense

[2]Includes Activities (C.I.D.) 0100 to 5999

[3]Includes Admissions, Records, Counseling, Guidance, and a portion of Financial Aids Services and Student Activities; also includes Student Services Administration.

[4]Includes Planning, Policy-Making, Fiscal Services, Staff Services, and General Management Services of Administration.

[5]Maintenance and Operations; Auxiliary Services (Bookstore, Food Services).

QUESTION #2 - Statewide, what proportion of the community is directly receiving benefits through participation in the instructional services of the California Community Colleges?

One kind of response to this question is provided in Table 3 which lists total fall enrollment for 1977 of Freshman and Sophomore students in the three segments of higher education. (A more detailed breakdown is included in the ANALYSES section of this report.)

TABLE 3

TOTAL FALL 1977 ENROLLMENTS
OF
FRESHMAN AND SOPHOMORE STUDENTS[1/]

TOTAL	UC's (General Campus)	CSUC's	CCCC's
1,073,579	40,425	87,021	946,133
100.0%	3.8%	8.1%	88.1%

Of the 1,073,579 Freshman and Sophomore students enrolled in an institution of public higher education in 1977 in California, 946,133 or 88.1% were enrolled in a community college.

Another perspective on access is provided in Table 4 which reports the participation rates per 1,000 of the population. As indicated in Table 4, nearly one out of every ten persons in California was enrolled in a credit or non-credit course in a community college in Fall 1977.

TABLE 4

PARTICIPATION RATES PER 1,000
FALL 1977

Population[1] Base	Credit Enrollment	Rate/ 1,000	Non-Credit Enrollment	Rate/ 1,000	Total Rate/ 1,000
13,428,989	1,115,874	83.09	205,834	15.32	98.42

[1]Non-institutional and non-military population between 18 and 64 years of age.

1/ Total and Full Time Enrollment: California Institutions of Higher Education, Fall 1977 (California State Department of Finance, 1978).

Further perspective on access may be gained by examining enrollments by family income status and by ethnic background. For this purpose the high school graduating class of 1975 was examined. The percentages of the 1975 high school graduating class enrolled in public higher education are summarized in Table 5 according to ethnic background and family income. It is apparent that the community college remains the college of opportunity for students of low income families and of ethnic minority background. For example: of high school graduates in 1975 from families with an income of $6,000 per year or less, 8% enrolled in public four-year colleges while 52% enrolled in community colleges. Of high school graduates in 1975 from families with an income of $25,000 or more per year, 25% enrolled in public four-year colleges while 47% enrolled in community colleges. Similar patterns of enrollment of members of the high school graduating class of 1975 are evident when enrollments are compared according to ethnic background.

TABLE 5

PERCENT OF 1975 HIGH SCHOOL GRADUATES
ENROLLED IN PUBLIC COLLEGES
BY ETHNIC BACKGROUND AND FAMILY INCOME[2/]

Enrollments by Ethnic Background	Black	Chicano	Latin	Asian	Fillipino	White/ Other
Public 4-Year College	18%	9%	11%	31%	18%	14%
Community College	54%	52%	49%	52%	45%	50%

Enrollments by Family Income	To $6,000	$6,000- $11,999	$12,000- $17,999	$18,000- $24,999	$25,000 or More
Public 4-year College	8%	10%	13%	15%	25%
Community College	52%	46%	51%	56%	47%

A final perspective on access comes from a review of enrollments in the segments of public higher education according to sex and ethnicity. Those data are provided in Table 6. With the exception of students with an Asian

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2/ Beyond High School Graduation: Who Goes to College? (University of California, Office of Outreach Services, May, 1978).

background and non-resident aliens, the percentage of undergraduate students of minority ethnic background is greater in the community colleges than in the other segments. The same is true for women students.

TABLE 6

PERCENT OF COLLEGE STUDENT ENROLLMENTS
BY ETHNICITY AND SEX[3/]
FALL 1977

	UC		CSUC		CCC
	Undergraduate	Graduate	Undergraduate	Graduate	Undergraduate Only
White					
M	69.1	56.3	50.8	48.6	69.5
F	70.6	66.3	53.4	52.1	72.8
Black					
M	3.1	2.5	4.3	2.8	10.2
F	4.4	4.4	5.8	3.8	10.4
Hispanic					
M	5.3	4.0	6.0	4.1	11.5
F	4.6	3.5	5.3	3.4	9.6
Asian					
M	10.1	5.1	5.2	4.8	6.0
F	10.3	5.7	5.5	4.1	5.0
American Indian					
M	0.5	0.3	0.9	0.7	1.6
F	0.5	0.5	0.8	0.6	1.5
Non-Resident Alien					
M	2.4	11.9	3.5	4.5	1.2
F	1.2	5.6	1.7	1.9	0.7
No Response					
M	8.1	18.7	24.0	29.5	-[1]
F	7.3	13.0	22.4	29.8	-
Other					
M	1.4	1.2	5.3	5.0	-
F	1.0	0.9	5.0	4.2	-

[1] No Response and Other were not included in data for community colleges.

3/ Postsecondary Education in California: Information Digest, (California Postsecondary Education Commission, 1978), pp. 48-52.

QUESTION #3 - What direct benefits can be estimated to accrue from open access to participation in at least two years of postsecondary education?

Comprehensive and detailed information on the economic benefit of community college education is not available. A recent Bureau of Census estimate indicates, however, that males with one to three years of college will have a mean income of $16,369 (1976 dollars) while a male with 12 years of education will have a mean income of $14,251 (1976 dollars). Females with one to three years of college will have a mean income of $9,344 while females with 12 years of education will have a mean income of $8,074 (1976 dollars).

Although no comprehensive evaluation of the economic benefits of community college education is attempted in this study, this single element of dollar difference in income for those completing two years of college has far-reaching impact. An increased annual income of $2,118 for men and of $1,270 for women multiplied by an average of 40 to 45 years of earnings multiplied by the numbers completing two years of study in a community college and, then, added to the economy through additional taxes paid and through the extra economic activity generated by the added income is of immense economic importance.

QUESTION #4 - What comparable measure of activity, if any, can be developed to compare costs of instructional and other program activities in the three segments of public higher education?

Comparisons among the three segments of higher education are extremely difficult for a variety of reasons. Missions, goals and target populations for the three segments are very different. In addition, cost allocation definitions among the segments are so different that after two studies the California Coordinating Council for Higher Education discontinued studies comparing costs of instruction in the three segments.

Some perspective on costs in the segments of higher education may be gained by analysis of patterns of State General Fund Expenditures in the segments. State General Fund Expenditures have increased in all segments. That increase has been dramatic in the past five years and the community college segment appears to have shown the greatest increase. If the expenditures are viewed in terms of the

numbers enrolled, however, and if the dollars expended are controlled for infaltion, it can be seen that there was no absolute increase in per-student support for community colleges from the State General Fund for the five years prior to Proposition 13. Those data are provided in Table 7. The procedures used in controlling for inflation are described in the ANALYSES section of this report.

As indicated above, the Coordinating Council for Higher Education discontinued reports comparing costs of instruction in all three segments. It is possible, however, to suggest a procedure by which some comparison could be made. The procedure suggested is described in the ANALYSES section of this report. It is based upon data provided for the last (1974) segmental cost comparison study of the CCHE.[4/] In summary, costs were aggregated by activity (Instruction, Academic Support, Student Service, Institutional Support and Independent Operation) and by functional type of program (General Academic, Occupational/Vocational, Special Session and Extension for credit). The aggregate total of all activities by program showed patterns of expenditure for each segment. Community colleges included General Academic with Occupational/Vocational in expenditure summaries since no distinction is made between programs at that level.

4/ The Costs of Instruction in California Higher Education (California Coordinating Council for Higher Education, 1974).

TABLE 7

FIVE YEAR PATTERNS OF STATE GENERAL FUND ALLOCATIONS
AND ENROLLMENTS: ALL SEGMENTS
(1973 Dollars = 100: Subsequent Years Adjusted)

	STATE GENERAL FUND ALLOCATIONS (000'S)			ENROLLMENTS			$ ALLOCATIONS/ENROLLMENT		
	UC	CSUC	CCC'S	UC	CSUC	CCC'S	UC	CSUC	CCC'S
1973-74 (100)	445,910	428,919	289,362	118,854	286,633	852,817	$ 3,752	$ 1,496	$ 339
1974-75 (1973 Dollars)	466,092	436,183	320,258	121,450	291,542	959,707	3,868	1,496	334
1975-76 (1973 Dollars)	498,266	457,474	352,269	128,486	310,891	1,101,548	3,878	1,471	320
1976-77 (1973 Dollars)	540,080	477,751	366,872	128,648	303,734	1,073,104	4,198	1,573	342
1977-78 (1973 Dollars)	543,096	495,231	377,444	126,505	303,380	1,120,520	4,293	1,633	337
	1973/77	1973/77	1973/77	1973/77	1973/77	1973/77	1973/77	1973/77	1973/77
	+ 21.8%	+ 15.5%	+ 30.4%	+ 9.9%	+ 5.8%	+ 31.4%	+ 14.4%	+ 9.2%	- .6%
	(1973 Dollars)	(1973 Dollars)	(1973 Dollars)						
	(65.4% in actual dollars)	(56.8% in actual dollars)	(77.1% in actual dollars)						

Since community colleges include costs not differentiated in the other segments, costs are not comparable with confidence. However, insofar as comparable costs are included, costs for weekly student contact hours in the community colleges compare favorably as indicated in Table 8.

TABLE 8

COSTS PER WEEKLY STUDENT CONTACT HOUR:
ALL PUBLIC SEGMENTS OF HIGHER EDUCATION, 1972-73
(All General Academic Program Costs)

	Total General Academic Program Costs ($)	Total WSCH (lower division)	Total Costs per WSCH (Col. 1 ÷ 2)
UC	$ 60,411,000	$ 699,249	$ 86.39
CSUC	$ 124,553,132	$ 1,576,800	$ 79.00
CCC	$ 561,316,485	$ 9,383,746	$ 59.82

Weekly student contact hour (WSCH) information for the community colleges was not available at the time of the 1974 study. WSCH data were obtained for this report to develop a comparison of costs among the segments for the 1972-73 academic year. This provides, at least, a basis for future comparisons when reporting procedures become more standardized.

QUESTION #5 - What differences are there among vocational education program costs in community colleges and high schools?

In response to this question, it is useful first to review choices which have been made in terms of program offerings. Table 9 shows the percentages of expenditures in the different types of program. As indicated by expenditures, the major areas of vocational program activity in the community colleges in 1976-77 (the last year for which data are available) were: Trade and Industry programs (26.9% of the total); Office programs (22.8%); Health programs (14.7%): Technical programs (11.4%); and Distributive (marketing/sales) programs (6.2%). The community colleges were allocated 53.3% of the Vocational Education funds for California for the year.

TABLE 9

PERCENT OF VOCATIONAL EDUCATION EXPENDITURES BY PROGRAM AND LEVEL[5/]

1976-77

	Community College	Secondary	University
Agriculture	3.9%	6.5%	
Distributive	6.2%	1.8%	
Health	14.7%	2.2%	3.7%
Consumer Homemaking	2.2%	16.6%	
Homemaking (Gainful)	3.1%	2.1%	
Industrial Arts	0.1%	9.4%	
Office	22.8%	25.7%	
Technical	11.4%	0.2%	
Trade & Industry	26.9%	18.4%	
Work Experience	1.4%	7.7%	
Support Services	7.3%	9.4%	96.3%

Vocational education expenditures per a.d.a. are shown for 1976-77 in Table 10. The table indicates a range of expenditures from $682.80 per a.d.a. for Distributive (Marketing/sales) programs to $1,486.89 per a.d.a. for Work Experience programs. The mean expenditure in community colleges in 1976-77 was $1,028.38 per a.d.a. During the same year the mean expenditure in the high schools was $1,278.12 per a.d.a.

QUESTION #6 - What is the placement ratio as reflected in standard reporting procedures for students enrolled in and completing vocational courses or programs?

The response to this question is summarized in Table 11. Of California students completing vocational education programs in 1976-77, 54.5% were from the community colleges. The status of 32.6% of the students was not known at the time of the report. Of the 94,832 completing VEA programs in the community colleges who were known to be available for employment, 92.4% were employed full-time or part-time. Of those for whom the status was known, 87.33% were employed or available for employment. If the same percentage is applied to those for whom the status was not known, the total employed

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[5/] From date provided by the Office of Field Operations, Bureau of Vocational Education, California State Department of Education.

or available for employment would be increased by 45,842 for a total of 140,224. In addition to the number who completed a vocational program, 76,636 left before completing a program but left with marketable skills.

TABLE 10

VOCATIONAL EDUCATION EXPENDITURES PER A.D.A.
BY PROGRAM AND LEVEL[6/]
1976-77

	Community College	Secondary	
Agriculture	$ 1,177.26	$ 1,658.59	
Distributive (Marketing/sales)	682.80	1,400.72	
Health	1,360.64	1,376.80	
Consumer Homemaking	780.18	1,002.11	
Homemaking (Gainful)	847.06	1,523.57	
Industrial Arts	716.54	1,113.92	
Office	879.04	1,103.66	
Technical	1,063.59	2,115.41	
Trade & Industry	919.08	1,371.49	
Work Experience	1,486.89	1,035.16	
TOTALS BY LEVEL[1]			GRAND TOTAL
Expenditures	$ 270,085,800	$ 236,162,774	$506,248,574
A.D.A.	262,631.4	184,774.0	447,405.4
Expenditures/A.D.A.	$ 1,028.38	$ 1,278.12	$ 1,131.52

[1] Expenditures for support services are not computed on the basis of a.d.a. They are included in totals and are used in computing total expenditures per a.d.a. See ANALYSES section for greater detail.

6/ From data provided by the Office of Field Operations, Bureau of Vocational Education, State Department of Education.

TABLE 11

VOCATIONAL STUDENTS COMPLETING PROGRAM 7/
1976-77

	S E X	Total Completing Program	%	Number Status Unknown	Number Not Available for Placement	Number Available for Employment	Left With Marketable Skills
High School	M	(51,057)		(15,581)	(15,769)	(19,702)	(2,473)
	F	(83,317)		(25,058)	(24,657)	(33,602)	(5,188)
	T	134,374	45.5%	40,639	40,426	53,309	7,661
Percent of Total		100%		30.2%	30.1%	39.7%	
Community College	M	(93,247)		(30,305)	(6,822)	(56,120)	(43.103)
	F	(67,768)		(22,188)	(6,865)	(38,712)	(33,533)
	T	161,015	54.5%	52,493	13,690	94,382	76,636
Percent of Total		100%		32.6%	8.5%	58.9%	
TOTAL	M	(144,304)		(45,886)	(22,591)	(75,827)	(45,576)
	F	(151,085)		(47,246)	(31,525)	(72,314)	(38,721)
	T	295,389	100%	93,132	54,116	148,141	84,297
Percent of Total		100%		31.5%	18.3%	50.2%	

7/ From unpublished data on Page 253 of Form VEA 225-A, dated July 18, 1978 provided by the Office of Field Operations, Bureau of Vocational Education, California State Department of Education. (Form VEA 255-A formerly was Form VEA-45.)

GENERAL SUMMARY

On a state-wide basis in 1977-78, California Community College operating expenditures were distributed as follows: 52.63% for Instructional Program Activities; 12.24% for General Instructional Services; 9.18% for Student Services; 5.89% for Instructional Support; 4.56% for Library Services; and 3.43% for Community Services.

Of all Freshman and Sophomore students enrolled in the three segments of public higher education in Fall 1977, 88.1% were in a community college. In 1977, nearly one person in ten in the California population between 18 and 64 years of age was enrolled in a credit or non-credit course in a community college. Of 1975 high school graduates from families with an income of $6,000 or less, 8% enrolled in public four-year colleges while 52% enrolled in community colleges. Of 1975 high school graduates from families with an income of $25,000 or more, 25% enrolled in a public four-year college while 47% enrolled in a community college. Similarly, a preponderance of ethnic minority student enrollment was in the community colleges.

Available information suggests that a male with one to three years of college education will have a mean income of $2,118 (1976 dollars) greater than that of a male with 12 years of education. The income in either case is lower for women but a woman with one to three years of higher education may expect a mean income $1,270 (1976 dollars) greater than one with 12 years of education. Although no economic analysis of this information is attempted in this report, the difference of $2,118 per male and $1,270 per female multiplied by a lifetime of productive work multiplied by the number of persons completing two years of study in a community college and, then, added to the economy through the extra economic activity generated by the added income plus the extra taxes paid by the individuals is of great economic benefit to the people of California.

If State General Fund expenditures are viewed in terms of the numbers of students served and if the dollars allocated are controlled for inflation, it may be concluded that there was no absolute increase in per-student support from the State General Fund for the community colleges during the five years prior to the passage of Proposition 13. By using Weekly Student Contact Hour (WSCH) information for the community colleges which is now available, the latest (1974)

Coordinating Council for Higher Education report comparing costs in the segments may be completed. That study, then, would show a cost per weekly student contact hour in 1972-73 of $59.52 in the community colleges as compared with $79.00 and $86.39 in the lower division of the other two segments.

As indicated in reports of vocational education expenditures, the major areas of vocational education activity in the community colleges in 1976-77 were: Trade and Industry programs (26.9% of the total); Office programs (22.8%): Health programs (14.7%); Technical programs (11.4%); and Distributive programs (6.2%). The community colleges were allocated 53.3% of the vocational education funds in California for the year. Reports of expenditures for vocational education indicate a range of expenditures from $682.80 per a.d.a. for Distributive programs to $1,486.89 for Work Experience. The mean for all vocational education expenditures in the community colleges in 1976-77 was $1,028.38 per a.d.a. During the same year the mean expenditure in the high schools was $1,278.12 per a.d.a.

Of California students completing vocational programs in 1976-77, 54.5% were from community colleges. Of the 94,832 completing vocational programs, who were available for employment, 92.4% were employed full time or part time. In addition to the number who completed a vocational program, 76,636 left before completing a program but left with marketable skills.

SUGGESTIONS FOR FURTHER STUDY

Efforts to determine costs, to compare costs, and to draw conclusions about cost effectiveness in the community colleges are limited by the data available. Considerable improvement has occurred in recent years. Much remains to be done, however, before there will be enough information and before the data will be accurate enough and similar enough to serve as the basis for the kind of decision-making which will be required in the years ahead. Five suggestions in this regard are made below:

1. It is suggested that the California Postsecondary Education Commission conduct a new inter-segmental cost comparison study and that the study be conducted annually.

2. It is suggested that the Chancellor's Office provide in-service training as required for the community

colleges in order that precise cross-over information will be available relating the Community College Budget and Accounting Manual to the NCHEMS System!

3. It is suggested that the Chancellor's Office expedite the extension of its new Data Information System for Non-Credit Classes to include credit classes.

4. It is suggested that arrangements be made through a cooperative effort of all segments of education for a comprehensive study of the economic impact and the cost benefits of education in California.

5. It is suggested that there be a comprehensive study and analysis of the costs of vocational education in all the segments of education.

COSTS IN THE CALIFORNIA COMMUNITY COLLEGES:

ANALYSES

BACKGROUND

The issue of Cost Effectiveness in higher education came into sharp focus at the beginning of the current decade when, confronting an era of change, several major social influences began to be felt in the post-secondary community. While some of the most dramatic issues of the early 70's have since diminished, two still remain: (1) The general revolt against the increasing tax burden; and, (2) A reduced regard for higher education in general. In the public mind, these two issues have resulted in a mandate for all public institutions to assume the burden of proof for their social utility and public benefit.

Early in the decade, Earl F. Cheit outlined a threefold task for the restoration of confidence in higher education. In Cheit's words: "First, the colleges and universities must have campuses that reveal themselves as being reasonably governable. . . . A second requirement for confidence is that they are reasonably efficient in their internal operations. . . Thirdly, . . . restored confidence will require convincing evidence that the activities of colleges and universities have a unifying set of purposes. . . purposes that the supporting public can understand and defer to." 8/

Since 1970, the California Community Colleges have taken Cheit's injunctions seriously. Fortunately, the majority of community college campuses escaped the turmoil of student revolt, but public confidence in the ability of all public institutions to manage resources efficiently continued to erode. As recently as January, 1979, Congressman Waxman's public opinion poll concerning significant issues in our time indicated the public mood very well. When asked about how much government should be spending in eight service categories, the following percentage of respondents indicated "Spend Less" for cultural institutions such as the Music Center and the County Art Museum (42.8%); Colleges and Universities (35.2%);

8/ Cheit, Earl F., "Outsider's Look at Financial Crisis in Higher Education," The Chronicle of Higher Education XI, (December, 1970) p. 6.

Elementary, Junior and Senior High Schools (31.6%); and, Public Libraries (28.0%). The same group of respondents, however, responded "Spend More" for the following services: Paramedics (48.4%); Local programs for senior citizens (46.8%); County Hospitals (37.9%); and, Police and Fire (32.2%).

Since 1970, the California Community Colleges have seen a number of Cost Analysis studies, and, through the efforts of both the Chancellor's Office and the California Community and Junior College Association, substantial progress was made in the development of a revised Budget and Accounting Manual and improved reporting procedures. By 1975, activity in the area of Cost Analysis had also increased at the national level, particularly as a result of the work of the National Center for Higher Education Management Systems (NCHEMS) to develop improved Management Information Systems software for use in the field. In this venture, particular attention has been given to three major approaches to Cost Accounting:[9/]

1. Program Costing - The analysis of costs associated with major activities rather than on resource categories such as salaries, fuel, buildings or supplies.

2. Unit Costing - The analysis of costs in terms of meaningfully associated activity units such as full time equivalent students to facilitate projection of costs of operation at various levels of operation.

3. Comparability costing - The definition of common measures associated with activity and output which are compatible in various settings and at various times in history.

In 1978, the American Council on Education published a multivolume study of Cost Analysis in Higher Education [10/] which reflects the current state of the art. The ACE study included 17 institutions nation wide, with St. Petersburg Junior College and Seattle Community College reflecting the public two-year segment. While it was evident from the review that much needs to be done to improve Cost Analysis

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[9/] Lawrence, Ben, "Cost Analysis in Postsecondary Education: The Contextual Realities," Higher Education Management (October 1975) pp 1-5.

[10/] Adams, Carl R., Russell Hankins and Roger G. Schroeder, A Study of Cost Analysis in Higher Education (Washington, D.C.: American Council on Education, 1978).

practices, there is evident progress being made. Still ahead, however, remains the solution to the problem of developing comparisons of cost where it cannot be demonstrated that there is a common definition of allocation procedures, or a common acceptance of the similarity of costed activities associated with certain outcomes. In the review of the literature, it is evident that the state of the art is now advanced to a point which allows only for direct cost comparisons to be made for

- actual versus budgeted costs
- comparison of costs between or among organizational units
- comparison of costs of outcome or output categories (degrees, certificates)
- comparison of costs of various alternatives.

The California Community College reporting system for fiscal data now will allow system-wide comparisons in at least three of these categories. Intra-segmental analysis, both of costs and of general program or activity impact on the State and on individual students, can be made with some confidence, and it is the purpose of this study to develop a first step in that direction.

What is the relevance of this study to the current context of higher education in the State?

First, there is the impact of Proposition 13, the tax reform initiative which, in June, 1978, dramatically culminated the frustrations of the people of California over the issue of local property taxes. If the Community Colleges had earlier heard the sound of distant drums beating a rhythm of "do more with less," the combined effect of tax reform and steady-state enrollments would increase the beat to a deafening and confusing cacophony.

Secondly, the State government began to echo the sentiment of constrained resources by singling out the problem of Community College Finance as having high priority in the five year planning cyle. In its Five Year Plan Update[11] the Post Secondary Commission noted that: "During the early 1970's,

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[11] Planning for Postsecondary Education in California: A Five Year Plan Update (California Postsecondary Education Commission, January, 1978).

large annual increases in State appropriations to the Community Colleges caused concern among members of the legislature, and the governor imposed a 5% limit, or "cap" on State fund increases in the 1975-76 budget." This action marked the opening of a period of examination of Community College Finance which was only further complicated by the passage of Proposition 13. While progress is being made to resolve the long term financing questions for the Community Colleges, a remaining concern expressed by the staff report of the Postsecondary Commission was: "How accountable the Community Colleges should be, in the aggregate, to State government for expenditures of large amounts of State money . . ."

In this context, Chancellor William Craig appointed an Ad Hoc Committee on Cost Effectiveness, which met in November, 1978 and agreed on the concept and design of the present study.

The Study in Context: Mission of the Community Colleges

Just as Chet has emphasized the need for accountability, so has the importance of clarity of purpose, or "mission." The purpose of higher education in California has been established by the State Legislature and is described in the Education Code, and was reaffirmed by the Joint Committee on the Master Plan for Higher Education in 1974. Currently, this purpose is stated in Education Code Section 66201:

> "It is the intent of the Legislature that each resident of California who has the capacity and the motivation to benefit from higher education should have the opportunity to enroll in an institution of higher education. Once enrolled he should have the opportunity to continue as long and as far as his capacity and motivation, as indicated by his academic performance and commitment to educational advancement, will lead him to meet academic standards and institutional requirements. The Legislature hereby reaffirms the commitment of the State of California to provide an appropriate place in California public higher education for every student who is willing and able to benefit from attendance."

While the Education Code is long and complicated, the philosophy and intent of the Legislature regarding Community College services is stated most succinctly in Education Code, Section 66701:

"Public community colleges shall offer instruction through but not beyond the second year of college. These institutions may grant the associate in arts and the associate in science degree. Their program may include but shall not be limited to: standard collegiate courses for transfer to other institutions; vocational and technical fields leading to employment; general or liberal arts courses; and community services."

The legislative mandate to the Community Colleges is as broad as the spectrum of the citizens of California. It has resulted in development of a wide range of instructional programs, student services and methodologies through which the Colleges have sought to meet the mandate of the legislature.

If the functions of higher education or the mission of the Community Colleges are to be modified, that modification should occur in straightforward public action by the Legislature. It should not come about by default as a result of fiscal or regulatory constraint.

Assuming that the mission of the Community Colleges will continue, it is certain that costs and cost effectiveness will be even more significant concerns in the coming years, for every public service is now subject to the same constraints of diminishing resources and public scrutiny. Choices must be made. The people and the Legislature must have reliable information upon which to base choices and policy decisions. However, given the diversity of functions, even among the segments of public higher education in California, and the diversity of operating conditions even within the California Community College segment itself, it must be recognized that cost analysis cannot serve as the sole foundation for decision making. At best, the cost analysis data contained in this report will provide a foundation of current information, and will highlight the need for further research to be conducted in all segments of public education in the State.

Research Questions and Limitations

Within the limitations of the time allowed for the study, it was agreed that primary source data gathering would be virtually impossible. For this reason, the research was based upon the examination of secondary source documents from which data could be drawn to answer the major research questions. It was further agreed that the primary emphasis

of this preliminary study would be given to intra-segmental cost accounting questions, based on access to the standardized reporting documents required of The California Community Colleges. These source documents include the CCAF 320, 305, 311 and 111 reports, and summary statistics developed by staff pertaining to attendance and fiscal data. To assure timeliness of the research, the 1977-78 academic year was selected, and complete sets of the district reports were provided to the consultants.

A second major thrust of the study was to be in the area of inter-segmental comparisons between two-year and four-year colleges and between community college and high school vocational education expenditures. Only limited inferences could be drawn on the basis of available data, but some attempt has been made to address each of the following research questions as fully as possible using secondary source data from a variety of sources.

The research questions are:

(1) Statewide, what are the relative costs of instructional versus non-instructional activities in the California Community Colleges?

(2) Statewide, what proportion of the community is directly receiving benefits through participation in the instructional services of the California Community Colleges?

(3) What direct economic benefits can be estimated to accrue from open access to participation in at least two years of post-secondary education?

(4) What comparable measures of activity, if any, can be developed to compare costs of instructional and other program activities in the three segments of public higher education?

(5) What differences are there among vocational education program costs in community colleges and high schools?

(6) What is the placement ratio, as reflected in standard reporting procedures, for students enrolled in and completing vocational courses or programs?

Although additional research questions were of interest to the Cost Effectiveness Committee, the problems of comparability of activity and outcome measures prevented direct inferences to be drawn on, for example, the relative benefit of C.E.T.A. Training and Support programs as compared with Community College programs leading to similar employment.

INTRA-SEGMENTAL COST ANALYSIS

The mission and goals of the California Community Colleges reflect a strong commitment to providing a diversity of programs and services to the people of the State. To date, no comprehensive analysis has appeared to indicate, in terms of program activity costs, just how the Community Colleges are allocating resources to meet the demands of the Master Plan, the Board of Governors' Five Year Plan, and other statewide statements of policy, philosophy, or legislative intent. Recent advances in the fiscal reporting procedures have now provided a basis upon which such cost analysis can proceed. The Cost Analysis contained in this report was developed for the 1977-78 academic year fiscal reporting period. From the CCAF 111, total costs were aggregated for all reporting Districts for each of the following program activities:

1. Instructional Services (credit and non-credit)
2. Student Services (Admissions and Records, Counseling and Guidance, and other Student Services including a portion of Financial Aids)
3. Library, Learning Resource, Media Services
4. Instructional Support Services

The costs for each of these programs were analyzed, both in the aggregate, and per unit of average daily attendance (a.d.a.), since each of the four categories is associated with patterns of student enrollment and attendance. Two other areas were also included for aggregate totals, but not for unit costs per a.d.a. These were:

5. Community Services
6. General Administrative Services (Planning, Policymaking, Staff Support, Fiscal and Management Services)

No separate analysis was made of the costs of Maintenance and Operations, or of Auxiliary Services (Food Services, Bookstore). Taken together, these last two categories account for approximately 13 percent of the Total Current Operating Expense, although there was considerable variety among the Districts in reporting the costs associated with these activities. Because no analysis was made of Maintenance and Operations or Auxiliary Services Costs, the data shown in Table 2 do not show these costs separately.

To assess relative costs of Instructional versus non-Instructional activities in the California Community Colleges, the figure used as the estimate of all costs of operation was the Total Current Operating Expense (T.C.O.E.). This figure appears in Column 3, summary line 1000 through 7100 for all objects of expenditure described in these categories by the Budget and Accounting Manual. Since Debt Service (Object 7100) is not included in the Total Current Operating Expense, the net result is that T.C.O.E. includes only those objects of expenditure numbered 1000 through 6999. On the CCAF 311, the Total Current Operating Expense is derived by adding three figures on page 2 of the report: (1) the "Total" of lines 26 + 35 (Col. 8); (2) the total of 6800 expenditures (Community Services); and, (3) the total of 6900 expenditures (Bookstore, Food Services). In other words, the CCAF 111 aggregates Costs by Activity Center (Program), while the CCAF 320 aggregates Costs by Object Code (Salaries, Benefits, etc.). Since the purpose of the research was to analyze Costs by Program Category (Instruction, Student Personnel Services, etc.), the CCAF 111 was used as the source document. In cases of conflict between the data shown on the CCAF 320 and the CCAF 111, the figures for Current Operating Expense derived from the CCAF 111 were used to create a common point of comparison throughout the study.

For 1977-78, not every Community College District filed a CCAF 111. In addition, it appeared that some variation existed among the districts concerning the allocations of costs to expenditure categories. Thus, the data should be taken in the aggregate as reflecting trends or patterns, while it should be taken in the individual case as reflecting current district understanding of the cost allocation process. Simply stated, this means that the current state of the art does not suggest any reasonable basis for comparisons between districts. The charge of the current research project included neither a mandate for comparing district expenditure patterns, nor a mandate for detailed analysis of instructional costs by Classification of Instructional Discipline (C.I.D.). Although there may be merit in

conducting such studies in the future, it is the opinion of the researchers that much work needs to be done to standardize the accounting and reporting procedure definitions prior to any full-scale intra-segmental study.

Cost Allocation Patterns Statewide

Total Current Operating Expense (T.C.O.E.) figures for each sub-category of the analysis were summed for all of the 63 reporting Districts for the 1977-78 fiscal year. Percentages of the total were derived for each major program category noted above: Instruction, Student Services, Instructional Support, Library Services, Community Services and General Institutional Services. As noted above, no separate analysis was made of the percentages of T.C.O.E. associated with Maintenance and Operations, or with Auxiliary Operations (Food Services, Bookstore).

In interpreting the Cost data, it should be remembered that Total Current Operating Expenses (T.C.O.E.) are not the same as Total Current Expense of Education (CEE), which excludes certain expenditure Object Codes to establish a District comparison base for other legislative and fiscal purposes. In the case of T.C.O.E., all expenditures in Object Codes 1000 to 6999 are included for each major Program area. Thus, for example, the TCOE per a.d.a. ($1,635.42) is a reflection of all objects of expenditure, including classified and certificated salaries, benefits, materials and supplies, and capital outlay directly associated with the program area.

As a basis for future Cost Allocation studies, it should be noted that the six (6) major Program areas analyzed have been defined according to criteria developed by the National Center for Higher Educational Management Systems (NCHEMS) to establish a Program Classification Structure (PCS). While procedures are not yet advanced enough to allow direct comparisons among the segments of Higher Education for similar activities, it is possible that further refinement of the Budget and Accounting Manual will make such comparisons truly meaningful. For the present, however, Inter-segmental comparisons should be evaluated very carefully.

Instructional Costs Per A.D.A.

Statewide, the unit cost (per a.d.a.) for Instruction was calculated to be $860.69, or 52.6% of the T.C.O.E./a.d.a. ($1,635.42). Among the Districts, the range of costs

associated with the Instructional Programs was found to be between $678.57 and $1,731.00. In terms of percentages, the range among the Districts fell between 36.88% and 63.97%. Variations among the Districts seemed to be primarily associated with the assignment of Employee Benefit Costs either directly to the various Instruction Activity Centers (C.I.D. 0100 to 5399), or to one of the Administration Activity Centers (6600, 6700). Overall, however, it appeared that slightly over one half of the Cost Allocation for T.C.O.E. was devoted to Instruction in 1977-78.

Library, Learning Resource, Media Service Costs associated with the Instructional process accounted for an additional 4.56%, or $14.65 per a.d.a. on the Statewide aggregate basis.

Instructional Support, including Administrative costs for program management as well as curriculum development, added $96.30 per a.d.a. or 5.89% in the statewide configuration.

Taken together, then, Instructional Services and related program activity centers in the California Community Colleges showed an aggregate total of 63.08%, or $1,031.64 per a.d.a.

Non-Instructional Costs

Student Personnel Services costs represent all associated unit costs for admissions and records, counseling and guidance, and other student services (Financial Aids, EOPS). Some administrative support costs directly related to admissions and records activities are also reflected in the 9.18% figure, or $150.19 per a.d.a.

Community Services, which are part of the unique service function of the California Community Colleges to the local areas, claimed 3.4% of the T.C.O.E., and was the lowest percentage of all expenditure categories. Effective with the 1977-78 academic year, the impact of Proposition 13 has been particularly heavy in the Community Services area. Since these services generate no a.d.a. support, those Districts which are continuing to offer Community Services are doing so primarily on a self-supporting, Fee for Services basis.

Administrative Services including General Institutional Service Costs and Policy and Planning Costs are combined in the final cost category analyzed. This category includes all executive and fiscal management services, data processing,

security, operations costs and transportation. These program activities account for 12.24%, or $200.01 per a.d.a.

Observations on Cost Allocation Patterns

There are obvious interactions among the expenditure categories included in the standard reporting forms, and it is clear that the labels used to designate the various categories of cost allocation do not communicate the total picture very successfully. Consider, for example, the total of expenditures allocated for each of the three activity Centers of Instruction, Instructional Support and Administrative Services. Within each total, personnel salary costs, both certificated and classified, accounted for major proportions of the total expenditure. However, direct salary claimed 82.2% of the total for Instruction; 69.4% for Instructional Support, and 50.4% for Administrative Services. On balance, salaries associated with both Instructional Support ($44,810,358) and Administrative Services ($67,656,656), totaled less than one-fourth of the total for instruction-related salaries.

Because of the deep involvement of the California Community Colleges in the career preparation of the citizens of the State, a separate analysis of expenditures in this field has been included below as part of the section on Inter-segmental comparisons.

INTER-SEGMENTAL COMPARISONS

State General Fund Support

Studies of funding sources for the California Community Colleges, California State University and Colleges, and University of California have been conducted over the past decade, partially in response to the patterns of increased State general fund expenditures in all segments of public higher education. As noted earlier, the Community Colleges have shown an apparently greater increase in State general fund activity than the other two segments in the last five years, and they have been singled out as a particularly high priority problem for future fiscal planning at the State level.

There are several ways to examine the relationship among the three segments to gain insight into the actual

patterns of State support. Without evaluating the obvious differences between the mission, goals and target populations of the three segments, the patterns of State support over the past five years may be examined in terms of allocations for each student enrolled. To control for the consumer price index impact on dollar values, it is possible to control for inflation by setting a dollar base value of 100 at 1973 and hold the dollars constant over the subsequent five years to 1977. Viewed in this perspective, the data are shown in Table 7.

The conclusion should be self-evident from the data: although actual dollar commitments have shown a dramatic increase over five years, when controlled for inflation and viewed in the context of counterbalancing enrollment increases in the California Community Colleges, there was no absolute increase in per-student support from the State General Fund for the five years prior to passage of Proposition 13.

Cost of Education

In 1971, Senate Concurrent Resolution 105 was passed, and its effect was to require the Coordinating Council for Higher Education (CCHE) to develop reports on a regular and timely basis comparing costs of instruction in all three segments. Two reports were developed when, recognizing the lack of consistent cost allocation definitions among the segments, and accepting the differences of institutional goals and objectives among them, the CCHE discontinued the series of studies.

One of the principal frustrations in the research effort continues to be the inconsistency of segmental data with regard to Program Classification Structure (PCS) elements defined by the NCHEMS project, and adopted as a standard for higher education. Nonetheless, it is possible for some comparisons to be made within reasonable assurance of comparability for certain institutional functions. In the 1971 Coordinating Council for Higher Education study, forms for reporting data were distributed, and cost data were developed for the lower division, upper division and graduate levels in the four-year colleges.

To develop comparison data, PCS definitions were used to aggregate costs by activity (Instruction, Academic Support, Student Service, Institutional Support and Independent Operations) and by functional type of program (General Academic, Occupational/Vocational, Special Session and Extension [for

credit]). The aggregate total of all activities by Program showed patterns of expenditure for each segment. Community Colleges, however, included more than one Program category (General Academic with Occupational/Vocational) in the expenditure summaries, since no Program distinction is drawn at that level.

As units of activity or output, data were gathered for the State University and Colleges, and for the University of California, on a Weekly Student Contact Hour (WSCH) basis. At the time of the 1974 study, the California Community Colleges did not provide WSCH data, but supplied a.d.a. figures only. However, accurate 1972-73 academic year data for the Community Colleges were obtained for this report to develop a comparison of costs among the segments for the 1972-73 academic year. Although no more recent data are available, Table 8 can be considered illustrative of a cost comparison which will become more meaningful as reporting procedures become more standard among the segments.

It is again important to note that the California Community Colleges include Costs in the General Academic Program area which are not differentiated or defined as in the other two segments. For this reason, Costs among the segments are not truly comparable with confidence. The data indicate, however, that, insofar as comparable Costs are included in the comparison, the Weekly Student Contact Hour Costs in the California Community Colleges compare favorably with those in the other two segments. With improved definitions to bring the Community College reporting system into better harmony with the Program Classification Structure of the National Center for Higher Education Management Systems (NCHEMS), it is anticipated that further research in this area will become more meaningful and valuable in the coming academic years. Even at this point, it would seem feasible for the Chancellor's Office to generate a comparable data base for any inter-segmental comparisons which might be made. The mandate of Senate Concurrent Resolution 105 may be even more important in terms of policy decisions pertaining to re-direction in the lower division in light of resource constraints in the senior segments. Questions of comparability and institutional function must be clarified as further research is undertaken.

Vocational Education

Vocational programs are a significant element in both secondary and postsecondary education in California. Data

from the unpublished 1976-77 Expenditure Summary Recap prepared in the Office of Field Operations, Bureau of Vocational Education, State Department of Education was used for the analysis of vocational education expenditures. The data are summarized in Table 12 by program and by level (Secondary, Community College, University). This is the most recent summary available. Although the categories (Parts A, B, C, D, F, G, and H) have been changed since 1976-77 and the cost basis is not the same as that used in the intra-segmental cost analysis in a prior section of this study, these data will provide insight regarding general expenditures and expenditures by program and level.

It will be noted that, of the funds expended in California for support of vocational education programs in 1976-77, 46.6% was expended in the Secondary Schools, 53.3% in the Community Colleges, and 0.1% in the four-year segments. The total of $506,682,432 is, obviously, a significant factor in educational finance in California.

It is possible to gain some perspective regarding choices which have been made by reviewing the expenditures listed in Table 12. It is apparent, for example, that the expenditure level in educational programs preparing students for office careers was similar in the Secondary School ($60,841,609) to that in the Community Colleges ($61,491,282). This was the area of greatest expenditure in the Secondary Schools and was the area of second largest expenditure in the Community Colleges.

Table 12 indicates several areas in which there is a larger difference in program magnitude and expenditure between the two levels. For example, the Community Colleges expended over $39 million educating students for work in the Health Occupations while the Secondary Schools expended slightly more than $5 million. On the other hand, expenditures for Consumer Homemaking (Part F) were considerably greater in the Secondary Schools ($39 million +) than in the Community Colleges ($6 million +). Expenditures were about the same at both levels for support activities such as: vocational guidance and counseling, evaluation, professional development, and research.

TABLE 12

VOCATIONAL EDUCATION EXPENDITURE SUMMARY BY PROGRAM AND LEVEL[12/]

1976-77

	Secondary	%	Comm. College	%	University	%	Total
Agriculture (01)	15,265,677	6.5%	10,499,125	3.9%	-		25,764,802
Distributive(04) (Marketing/Sales)	4,156,090	1.8%	16,857,326	6.2%	-		21,013,416
Health (07)	5,110,961	2.2%	39,698,082	14.7%	16,308	3.7%	44,825,081
Consumer Hmkg (09.01)(Part F)	39,267,868	16.6%	6,018,425	2.2%	-		45,286,293
Homemaking (09.02) (Gainful)	5,078,665	2.1%	8,390,097	3.1%			13,468,762
Industrial Arts(10)	22,203,198	9.4%	310,048	0.1%			22,513,246
Office (14)	60,741,609	25.7%	61,491,282	22.8%	-		122,232,891
Technical (16)	447,895	0.2%	30,808,301	11.4%	-		31,256,196
Trade & Industry(17)	43,413,700	18.4%	72,594,894	26.9%	-		116,008,594
Work Experience(90.05)	18,134,194	7.7%	3,856,868	1.4%	-		21,991,062
Voc. Guidance & Counseling (90.01)	9,364,645	4.0%	8,523,850	3.1%	-		17,888,495
Evaluation (90.02)	343,157	0.1%	201,671	0.1%	18,732	4.3%	563,560
Prof. Develop.(90.03)	442,403	0.2%	178,897	0.1%	2,471	0.6%	623,771
Research (90.04)	530,096	0.2%	432,739	0.2%	100,216	23.1%	1,063,048
Other Ancillary(90.06)	10,383,647	4.4%	9,623,030	3.6%	296,401	68.3%	20,303,078
Work Study(Part H)	1,278,969	0.5%	601,165	0.2%	-		1,880,134
LEVEL TOTALS	236,162,774	100.0%	270,085,800	100.0%	433,858	100.0%	506,682,432
% OF GRAND TOTAL	46.6%		53.3%		0.1%		100.0%

12/ From data provided by the Office of Field Operations, Bureau of Vocational Education, California State Department of Education.

Information regarding vocational education expenditures per a.d.a. (average daily attendance) for 1976-77 is provided in Table 13. Separate expenditures are listed only for Part B, the most significant part of the program related directly to a.d.a. Also, Table 13 contains total expenditures for all parts (A, B, C, D, F, G, and H).

Conclusions regarding the relative value of the various programs or the relative effectiveness of the level of delivery should not be drawn from these data. For a variety of valid reasons one kind of program is more expensive than another. The goals of the students and the functions are different for the two levels (Secondary and Community Colleges). The data do provide further perspective on vocational education costs in California, however.

The amount expended on each program for "adults" (non-credit) is listed under expenditures for Part B. The amount expended for "adults" is included in the total listed in each category. For example, of the $5,096,885 expended in the Secondary Schools for health programs, $1,320,239 was expended on "adults." Also $3,058,246 of the $43,199,440 expended in the Secondary Schools in Trade and Industry programs was expended for "adults." Of the $452,891,891 total expended for all Part B programs in both levels, $10,211,854 was expended on "adults."

Additional perspective regarding vocational education in California may be gained through review of information related to the employment status of students completing vocational programs. Tables 11 and 14 contain summaries of information for 1976-77. Again this is the most recent year for which state-wide data are available. In the left-hand column of Table 11 are listed the numbers of those completing the programs according to sex and level (Secondary, Community Colleges). In the center three columns are listed the numbers and the percentage of the totals of those who were not available for employment or placement at the time of the report, those who were employed or available, and those for whom the status was not known. The right-hand column indicates the numbers who did not complete a Vocational program but left before completion with marketable skills.

Table 11 reveals that more women than men completed vocational programs in the high schools while the reverse was true in the Community Colleges. The percentage of those for whom the status was unknown was about the same for both levels.

TABLE 13

VOCATIONAL EDUCATION EXPENDITURE SUMMARY PER A.D.A. FOR PART B AND FOR ALL PARTS[13/]
1976-77

	PART B				TOTAL (PARTS A,B,C,D,F,G,H)		
	Expenditures			EXP.per			
	Total	Adult(Incl.)	A.D.A.	A.D.A.	Expenditures	a.d.a.	Exp. per a.d.a.
AGRICULTURE (01)							
Secondary	15,153,425	89,689	9,204.0	1,646.40	15,265,677	9,204.0	1,658.59
Community College	10,469,703	42,541	8,918.3	1,173.96	10,499,125	8,918.3	1,177.26
DISTRIBUTIVE (04)							
Secondary	3,903.580	175,010	2,967.1	1,315.62	4,156,090	2,967.1	1,400.72
Community College	16,809,873	68,879	24,688.5	680.88	16,857,326	24,688.5	682.80
HEALTH (07)							
Secondary	5,096,885	1,320,239	3,712.2	1,373.01	5,110,961	3,712.2	1,376.80
Community College	39,592,978	52,625	29,176.0	1,357.04	39,698,082	29,176.0	1,360.64
CONSUMER HMKG (09.01)(Part F)							
Secondary	-	-	-	-	39,267,868	39,185.3	1,002.11
Community College	-	-	-	-	6,018,421	7,714.1	780.18
HOMEMAKING (09.02)(Gainful)							
Secondary	4,950,922	77,374	3,333.4	1,485.25	5,078,665	3,333.4	1,523.57
Community College	8,369,640	8,699	9,905.0	844.99	8,390,097	9,905.0	847.06
INDUSTRIAL ARTS (10)							
Secondary	22,170,098	11,736	19,932.5	1,112.26	22,203,198	19,932.5	1,113.92
Community College	310,048	-	432.7	716.54	310,048	432.7	716.54
OFFICE (14)							
Secondary	60,271,356	3,644,895	55,036.6	1,095.11	60,741,609	55,036.6	1,103.66
Community College	61,330,593	192,611	69,952.5	876.75	61,491,282	69,952.5	879.04
TECHNICAL (16)							
Secondary	405,693	56,130	207.8	1,952.32	447,895	207.8	2,155.41
Community College	30,732,675	124,659	29,720.8	1,034.05	30,808,301	29,720.8	1,063.59
TRADE & INDUSTRY (17)							
Secondary	43,199,440	3,058,246	31,654.4	1,364.72	43,413,700	31,654.4	1,371.49
Community College	72,482,021	504,748	78,986.8	917.65	72,594,894	78,986.8	919.08
WORK EXPERIENCE (90.05)							
Secondary	18,128,362	1,850	17,518.2	1,034.83	18,134,194	17,518.2	1,035.16
Community College	3,791,794	-	2,625.7	1,444.11	3,856,868	2,625.7	1,486.89

TABLE 13 (CONT.)

VOCATIONAL EDUCATION EXPENDITURE SUMMARY PER A.D.A. FOR PART B AND FOR ALL PARTS[13/]
1976-77

	PART B Expenditures				TOTAL (PARTS A,B,C,D,F,G,H)		
	Total	Adult(Incl)	A.D.A.	EXP.PER A.D.A.	EXPENDITURES	A.D.A.	EXP. PER A.D.A.
VOC. GUID. & COUNS.(90.01)							
Secondary	8,769,113	110,640	174.2	NA	9,364,645	174.2	NA
Community College	7,944,659	-	29.1	NA	8,523,850	29.1	NA
EVALUATION (90.02)							
Secondary	232,774	-	-	-	343,157	-	-
Community College	180,625	-	-	-	201,671	-	-
PROF. DEVELOPMENT (90.03)							
Secondary	250,921	4,740	2.9	NA	442,403	2.9	NA
Community College	112,003	-	-	-	178,897	-	-
RESEARCH (09.04)							
Secondary	105,279	-	-	-	530,096	-	-
Community College	281,888	-	219.1	1,286.57	432,739	219.1	1,970.08
OTHER ANCILLARY (90.06)							
Secondary	9,471,637	666,537	1,845.4	NA	10,383,647	1,845.4	NA
Community College	8,373,906	-	262.8	NA	9,623,030	262.8	NA
WORK STUDY (Part H)							
Secondary	-	-	-	-	1,278,969	-	-
Community College	-	-	-	-	601,165	-	-
LEVEL TOTALS							
Secondary	192,217,092	9,217,092	145,588.7	1,319.54	236,162,774	184,774.0	1,278.32
Community College	260,782,046	994,762	254,917.3	1,023.01	270,085,800	262,631.4	1,028.38
GRAND TOTAL	452,891,891	10,211,854	400,506.0	1,130.80	506,248,574	447,405.4	1,131.52

[13/] From data provided by Field Operations Office, Bureau of Vocational Education, California State Department of Education.

Almost 40% of High School students who completed a vocational program were employed or available for employment while almost 59% of Community College students were employed or available. In addition to the 161,015 Community College students who completed a program, 76,636 who did not complete a program left with marketable skills.

Student completion data are provided in greater detail in Table 14. Reporting procedures for the two levels differ somewhat with the result that for Community Colleges, numbers in the "Not in Labor Force for Other Reasons" category includes those listed for secondary education under "In Armed Forces" and "Full-Time Student." Also, for Community Colleges, all former students employed full-time are included in the category "Employed in Occupation for Which Trained" even though they may have been employed in a related or unrelated occupation.

Of the total available for employment after their education, 92.4% were employed from the Community Colleges and 87.6% from the High Schools.

While 30.1% of former High School students were not available for placement, most (78.5%) were continuing with their education. Of the total, 6.9% were in the armed forces. Although the detail is not provided regarding the 8.5% of Community College vocational students who were not available for employment, it is reasonable to assume that a large proportion were continuing their education.

It is apparent that thousands of students are prepared for and enter the labor force each year as a result of their public vocational education.

TABLE 14

VOCATIONAL STUDENTS COMPLETING PROGRAM: EMPLOYMENT AVAILABILITY DETAIL[14/]

1976-77

		SEX	High School	%	Community College	%	Total	%
NOT AVAILABLE	In Armed Forces	M	(2,279)		-		(2,279	
		F	(503)		-		(503)	
		T	2,782	6.9%	-		2,782	5.1%
	Full Time Student	M	(12,072)		-		(12,072)	
		F	(19,686)		-		(19,686)	
		T	31,758	78.5%	-		31,578	58.7%
	Not in Labor Force for Other Reasons	M	(1,418)		(6,822)		(8,240)	
		F	(4,468)		(6,868)		(11,336)	
		T	5,886	14.6%	13,690	100.0%	19,576	100.0%
	TOTAL NOT AVAILABLE	M	(15,769)		(6,822)		(22,591)	
		F	(24,657)		(6,868)		(31,525)	
		T	40,426	100.0%	13,690	100.0%	54,116	100.0%
EMPLOYED OR AVAILABLE	Employed in Occupation for Which Trained	M	(5,296)		(38,307)		(43,603)	
		F	(13,034)		(24,730)		(37,764)	
		T	18,330	34.4%	63,037	66.5%	81,367	54.9%
	Employed in Related Occupation	M	(3,632)		-		(3,632)	
		F	(5,348)		-		(5,348)	
		T	8,980	16.8%	-		8,980	6.1%
	Employed in Unrelated Occupation	M	(5,488)		-		(5,488)	
		F	(5,299)		-		(5,299)	
		T	10,787	20.2%	-		10,787	7.3%
	Employed Part - Time	M	(2,984)		(13,910)		(16,894)	
		F	(5,632)		(10,696		(16,328)	
		T	8,616	16.2%	24,606	25.9%	33,222	22.4%
	Unemployed-Seeking Employment	M	(2,307)		(3,903)		(6,210)	
		F	(4,289)		(3,286)		(7,575)	
		T	6,596	12.4%	7,189	7.6%	13,785	9.3%
	TOTAL AVAILABLE	M	(19,707)		(56,120)		(75,827)	
		F	(33,602)		(38,712)		(72,314)	
		T	53,309	100.0%	94,832	100.0%	148,141	100.0%

[14/] From unpublished data on page 253 of Form VEW 255-A dated July 18, 1978 provided by the Office of Field Operations, Bureau of Vocational Education, California State Department of Education. (Form VEA 255-A formerly was Form VEA-45.)

IMPACT

Access through the Open Door

Historically, the California Community Colleges have taken pride in providing educational access to the citizens of the State, including the majority of high school graduates who are not eligible to attend either the State College and University System, or the University of California. In addition, many high school graduates who are eligible to attend a four-year college or university campus, choose to attend a local two-year college because of locale, cost, or program considerations. Community Colleges have thus traditionally claimed the lion's share of all enrollments at the freshman and sophomore levels of public higher education in California. For Fall, 1977, the Community Colleges enrolled 88% of all freshman and sophomore students, with nearly one million students finding access to higher education through the Community College system. (See Table 15.)

Access to public higher education is also reflected in the participation ratios statewide for full-time and total enrollments of the population 18 to 64 years of age. These statistics, developed by the State Department of Finance, Population Research Unit, indicate the impact of the California Community Colleges upon educational access in California. (See Table 4.) For 1977, nearly one out of every ten persons in California was enrolled in a credit or non-credit course in a Community College.

TABLE 15

FALL 1977 ENROLLMENT

OF

FRESHMAN AND SOPHOMORE STUDENTS[15/]

	CCC's	CSUC's	UC's General Campus	TOTAL
Male (Freshman)	312,671	22,690	11,495	346,856
(Sophomore)	136,941	19,572	9,167	165,680
Female (Freshman)	372,294	25,298	11,119	408,711
(Sophomore)	124,247	19,466	8,644	152,357
SUB-TOTALS (Freshman)	684,945	47,988	22,614	755,547
(Sophomore)	261,188	39,033	17,811	318,032
GRAND TOTAL: ALL	946,133	87,021	40,425	1,073,579
	(88.1)	(8.1)	(3.8)	(100.0)

Note: The definition of "Sophomore" in the U. C. system includes only those students who have completed 40.1-83.5 quarter units of credit. In the CSUC and CCC systems, the definition is 45-90 quarter units of credit.

Two California studies have been conducted which have traced the patterns of participation of high school graduates in higher education. Based upon a sample of 9,965 high school graduates in the class of 1975, a University of California study showed evident inequalities in participation according to racial/ethnic origin, family income, and eligibility for the CSUC or UC system. Table 16, taken directly from the UC study, illustrates the estimated participation by racial/ethnic groups:[16/]

15/ Total and Full Time Enrollment: California Institutions of Higher Education, Fall 1977 (California State Department of Finance, 1978).

16/ Beyond High School Graduation: Who Goes to College? (University of California, Office of Outreach Services, May, 1978).

TABLE 16

POSTSECONDARY ACTIVITIES BY ETHNIC BACKGROUND
CLASS OF 1975

Postsecondary Activity	Black	Chicano	Latins	Asian	Fillipino	White/Other
Enrolled in Public 4 years	18%	9%	11%	31%	18%	14%
Enrolled in CCC	54%	52%	49%	52%	45%	50%
Enrolled in Private	3%	3%	4%	4%	3%	4%
Enrolled Out-of-State	4%	2%	2%	2%	0	3%
Enrolled in Voc. School	10%	8%	10%	3%	12%	5%
Did not enroll	11%	26%	24%	8%	22%	24%

In the same study, enrollment patterns were estimated for students from different income groups. The following table shows these results:

TABLE 17

POSTSECONDARY ACTIVITIES BY FAMILY INCOME
CLASS OF 1975

Postsecondary Activity	$6,000	$6-11,999	$12-17,999	$18-24,999	$25,000+
Enrolled in Public 4 years	8%	10%	13%	15%	25%
Enrolled at CCC	52%	46%	51%	56%	47%
Enrolled at Private	3%	4%	4%	3%	5%
Enrolled Out-of-State	2%	3%	2%	2%	5%
Enrolled in Vocational School	10%	5%	6%	5%	4%
Did not enroll	25%	32%	24%	19%	14%

While the interplay of factors leading to educational choices is complex, it is clear that from any perspective, the California Community Colleges have provided unparalleled access to higher education in the State. Such access is particularly evident in the participation patterns of low income high school graduates. During the past decade, access has improved for academically qualified minority high school graduates, who have been given academic and financial motivations to develop their full academic potential in all segments of higher education. However, the Community Colleges continue to claim the greatest share of enrollments for all income and ethnic groups.

Economic Benefit of Community Colleges

Access to public higher education creates measurable economic benefits: there are both individual (direct) and societal returns which accrue because of a public investment of capital in the community colleges. Over the past decade, there has been a change in the pattern of economic return in the form of anticipated lifetime earnings for persons completing college degrees. At the same time the period of rapid expansion of the number of high-level positions in the labor force came to an end and college graduates in general began to accept positions requiring less training than they had acquired. According to a study of lifetime earning patterns by Freeman[17] the gap between expected lifetime earnings of four-year college and high school graduates remained constant at about 11% between 1959 and 1969, but by 1974 it had declined to approximately 8.5%.

For the community college graduate, however, the picture has been encouraging. Students who have begun to question the value of the four-year college degree have found that the shorter term, lower cost investment in the two-year college is a realistic and cost beneficial alternative.

To illustrate this on an individual and social level, consider the research by Harold Kastner,[18] who has studied community college patterns of economic return since the

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17/ Freeman, R., "Overinvestment in College Training," Journal of Human Resources (Summer 1975) pp 287-311.

18/ Kastner, Harold, "The Economic Value of Community Junior Colleges," Junior College Journal (November, 1965) pp 29-34.

mid-1960's. According to Kastner's methodology, an estimate is made of the individual students direct and indirect costs of attendance for two years and these costs are deducted from the projected forty-five year work span earnings.[19] Kastner's most recent estimates of direct and "opportunity" costs (forgone income) for males and females have been updated to 1976 dollars for comparison purposes.

TABLE 18

STUDENT COSTS FOR COMMUNITY COLLEGE ATTENDANCE

	Fees(Direct Costs) (2 years)	Forgone Income (2 years)	Total Costs (2 years)
Males	822	8,754	9,576
Females	822	5,364	6,186

To estimate the return on the individual investment, we will assume average employment over a 45 year work span. According to the U. S. Bureau of Census, the most recent estimates of mean incomes for persons with high school versus community college level education attainment is (1976 dollars):[20]

TABLE 19

MEAN INCOME BY EDUCATIONAL ATTAINMENT
(1976 Dollars)

Attainment	Males	Females
12 years High School	$14,251	$ 8,074
1-3 years college	16,369	9,344

[19] Kastner, Harold, "Cost/Benefit Analysis of Community College Education," Community College Review (4:3; Winter, 1976), pp. 17-26.

[20] Carroll, Stephen J. and Peter A. Morrison, "Demographic and Economic Influences on the Growth and Decline of Higher Education," in Harry F. Silberman and Mark G. Ginsberg (eds.) Easing the Transition from Schooling to Work (San Francisco: Jossey Bass New Directions #16, Winter, 1976).

On this basis, and assuming the costs updated to 1976 from Kastner's 1974 estimate, the pattern in the table below reasonably derived as an individual estimate of the return upon the investment in community college education. Again, the model for this estimate is derived from Kastner (1976).

TABLE 20

FORTY-FIVE YEAR MARGINAL GROSS INCOME GAINS:
HIGH SCHOOL VS COMMUNITY COLLEGE LEVEL
EDUCATIONAL ATTAINMENT
(1976 Dollars)

Sex	Mean 45 Year Income (1)	Community College Level Attainment (2)	Direct and "Opportunity" Costs (-) (3)	Sub-Total (4)	Mean Marginal Gross Income (4-1)
Males	$ 641,295	$ 736,605	- $9,576	$ 727,029	$ 85,734
Females	363,330	420,480	- 6,186	414,294	50,964

To put the marginal gross income in context, Kastner has noted that, compared with his 1960 dollar analysis which identified a return of 5.03% for males and 4.22% for females, by 1974 the rate of return had increased to 5.60% for males and 5.88% for females.

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